

**WASTEWATER TREATMENT PLANT  
LABORATORY STANDARD OPERATING  
PROCEDURES**

FOR THE

**TOWN OF CHAPEL HILL, TENNESSEE**

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
CONSENT ORDER CASE NO. WPC15-0040

JOB NUMBER 2050

DECEMBER 2015



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Signature

Mark Graves  
Printed Name

12-14-15  
Date

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WASTEWATER TREATMENT PLANT  
LABORATORY STANDARD OPERATING PROCEDURES (SOP)  
CONSENT ORDER CASE NO. WPC15-0040  
CHAPEL HILL, TENNESSEE

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WASTEWATER TREATMENT PLANT  
LABORATORY STANDARD OPERATING PROCEDURES (SOP)  
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CHAPEL HILL, TENNESSEE

I. Introduction

The laboratory at the Chapel Hill Wastewater Treatment Plant (WWTP) is used to perform analysis needed both for compliance with requirements specified by NPDES Permit Number TN0064670 and also for treatment plant process control. Capable personnel are required to run all analysis and to record the results on a daily log. Quality assurance is necessary so that decisions resulting from use of the data are based on sound scientific evidence. The purpose of this reference is to document activities being performed as a laboratory to comply with the Tennessee Department of Environment and Conservation provisions. In addition, it is to be used to train laboratory personnel in the standard operating procedures of the plant laboratory.

II. Monitoring Program

Samples are collected to fulfill permit requirements for testing plant influent and effluent parameters per the current NPDES Permit. The program is summarized below in Table II-1. Sample location numbers in the table below correspond to numbers on the plant schematic in the Appendix.

TABLE II-1  
NPDES PERMIT REQUIREMENTS

<u>Sample Location Type and Location</u>	<u>Parameter(s) Tested</u>	<u>Monitoring Frequency</u>
Effluent Continuous (2)	Flow	Totalized Daily; 7/week
Influent – 24-hour composite (1)	BOD5	1/week
Effluent Grab Sample (3)	BOD5	1/week
	Suspended Solids	1/week
Effluent Grab Sample (2)	E-Coli	1/week
	Dissolved Oxygen	5/week
	pH	5/week
	Chlorine Residual	5/week
	Settleable Solids	1/week

### III. Sampling

Plant personnel collect the influent and effluent samples at approximately 8:30 A.M. at the required frequency. A grab sample on the influent is taken from the influent divider chamber (Sample location #1) located between cell number 1 and cell number 2. Required grab samples for the effluent are taken from a sampling point at the chlorine contact chamber (Sample location #2). Required composite effluent samples are taken from the composite sampler located in the laboratory building (Sample location #3). Samples are then analyzed immediately at the lab and if not, samples are refrigerated at 0-6 degrees Celsius.

Samples for pH, Dissolved Oxygen, Chlorine and E. Coli are analyzed immediately. Samples for BOD, Suspended Solids and Settleable Solids are allowed to stand at room temperature while calibration checks are performed. Analysis begins at approximately 9:15 A.M. on said samples.

Samples for Dissolved Oxygen and pH are collected in plastic or glass containers for direct transfer to the laboratory and attested within 15 minutes. Samples for E. Coli are collected in a sterilized container and tested shortly thereafter. Sample handling and preservation requirements for wastewater samples are shown in Table III-1 hereinafter.

TABLE III-1  
SAMPLE HANDLING REQUIREMENTS

<u>Parameter</u>	<u>Sampling</u>	<u>Preservation</u>	<u>Container</u>	<u>Max Holding Time</u>	<u>Analytical Method</u>
BOD5	24-Hour Comp.	Cool, 6°C	Plastic/Glass	48 Hours	5210 B (2)
TSS	24-Hour Comp.	Cool, 6°C	Plastic/Glass	7 Days	2540 D
Settleable Solids	Grab	Cool, 6°C	Plastic/Glass	48 Hours	2540 F
D.O.	Grab	None	Glass	Immediate	4500-O G
pH	Grab	None	Plastic/Glass	Immediate	4500-H B
E. Coli	Grab	Cool, <10°C	Sterilized Plastic/Glass	6 Hours	m-ColiBlue24
Chlorine Residual	Grab	None	Glass	Immediate	4500Cl-G
Temperature	Grab	None	Glass	Immediate	2550B

"Standard Methods for the Examination of Water and Wastewater," American Public Health Association, 21<sup>st</sup> Edition, 2005.

IV. Analysis

Accepted test methods are used accordance to Standard Methods, 21<sup>st</sup> Edition.

A. Biochemical Oxygen Demand

Reference – Standard Methods, 21<sup>st</sup> Edition, Method 5210 B.

Written Procedure – See Appendix

Protocol – The Chapel Hill WWTP's final effluent sample is taken from the composite sampler in the laboratory. Dissolved Oxygen measurements are performed using a meter and probe. Dilutions are prepared so that appropriate deletions are obtained. Care is taken to see that dilution water is not oxygen saturated. Hach prepared nutrient buffer pillows are used to mix 3 liters of dilution water. The meter and probe are calibrated using the air method according to manufacturers' recommendations.

Bench Sheet – See Appendix

B. Suspended Solids (Nonfilterable Residue)

Reference – Standard Methods, 21<sup>st</sup> Edition, Method 2540 D

Written Procedure – See Appendix

Protocol – Hach Book 47mm glass fiber filters with vacuum pump

Bench Sheet – See Appendix

C. Settleable Solids

Reference – Standard Methods, 21<sup>st</sup> Edition, Method 2540 F

Written Procedure – See Appendix

Protocol – An Imhoff cone is used to measure the amount of settleable solids in the sample over a 60 minute period.

Bench Sheet – See Appendix

D. Dissolved Oxygen

Reference – Standard Methods, 21<sup>st</sup> Edition, Method 4500-O G.

Written Procedure – See Appendix

Protocol – A membrane electrode probe and meter are used to read the oxygen content of the sample. Automatic stirring is used on all samples and during air calibration.

Bench Sheet – See Appendix

E. pH

Reference – Standard Methods, 21<sup>st</sup> Edition, Method 4500-H B.

Written Procedure – See Appendix

Protocol – Two buffer calibrations are performed daily using pH 7 and pH 10 buffers. Automatic stirring is used on all samples and calibration.

F. E. Coli

Reference – Standard Methods, 21<sup>st</sup> Edition, Hach Method m-ColiBlue24.

Written Procedure – See Appendix

Protocol - Procedure using membrane filtration, and m-ColiBlue24 broth in PourRite Ampules. Two dilutions are necessary to obtain a proper count. A dry incubator is used for incubation.

Bench Sheet – See Appendix

G. Chlorine Residual

Reference – Standard Methods, 21<sup>st</sup> Edition, Method 4500-CL G.

Written Procedure – See Appendix

Protocol – Procedure using the Residual Colorimetric DPD Method that uses a colorimeter for the determination of residual Chlorine concentration in water.

Bench Sheet – See Appendix

V. Laboratory Quality Assurance

It is recognized that quality assurance of analytical data requires the use of specific quality control measures as well as the verification of quality using data validation techniques.

Lab Facility – The laboratory is kept in a clean and orderly condition at all times. The room temperature is maintained as constant as possible. Care is taken to maintain air quality.

Personnel Training – Initial training for new staff is a priority. Regular continuing training is also provided to ensure competence and maintenance of analytical skills.

Instrument Calibration – Instruments are calibrated on a daily basis. Those instruments which require calibration include the spectrophotometer, analytical balance, dissolved oxygen meter and probe, pH meter and probe. Records of calibrations are recorded on log sheets. An instrument technician (LabtronX, Inc) is also on contract and comes once per year to calibrate and service all laboratory instruments and perform repairs when necessary.

Equipment Maintenance – All equipment is maintained in proper working order. When problems arise, repairs are performed by either the lab personnel or by a qualified service representative. Detailed records of all problems and repairs including who performed the service and the costs are kept. For the purpose of documenting data, the dates of breakdown and subsequent repair are considered particularly important. Daily checks of the drying oven temperature, incubator temperatures and composite samplers' temperature are performed and recorded. The analytical balance is checked daily using the unit's calibration setting, checked daily by certified (100g S) weight, and is serviced annually by a professional. The dissolved oxygen membrane is changed as necessary when readings become erratic or the meter fails to calibrate properly. Records of all routine maintenance and repair are kept on log sheets.

Analytical Reagents - Only analytical grade reagents are used. Labels on all chemical reagents are marked with the date received and opened. Chemicals are stored out of

direct sunlight or otherwise in the refrigerator if experience or other information suggests that cool storage of a particular reagent is warranted. Care is exercised to prevent cross contamination of all reagents. Shelf life dates are closely monitored. For reagents mixed in the lab, shelf life recommendations provided with the analytical method are followed. Distilled water is purchased locally and is stored in the original container. Care is exercised to protect the quality of this water.

Labware Cleaning – After each use, glassware is washed with a phosphate free detergent, rinsed with tap water, then rinsed with distilled water, dried and stored for the next use.

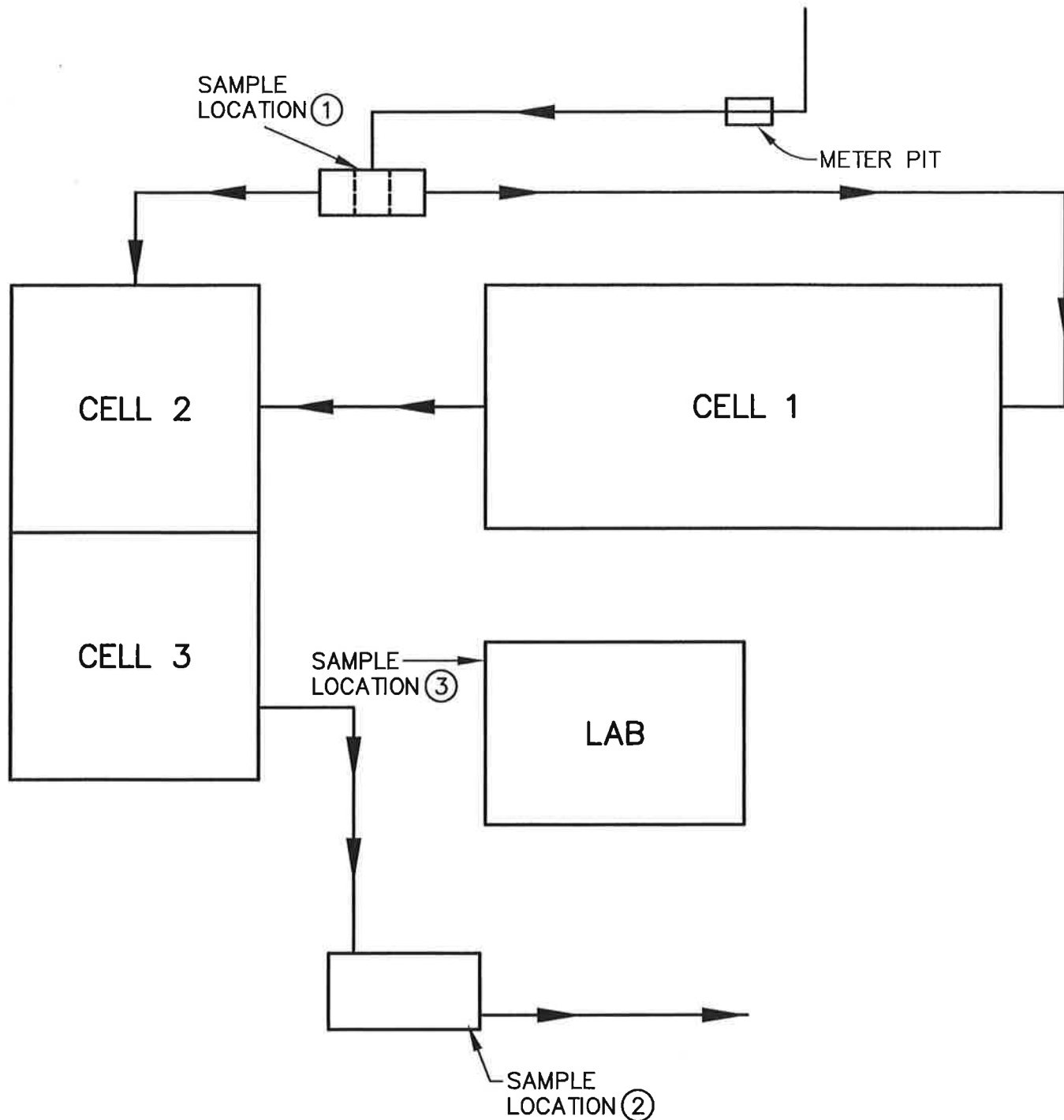
Quality Control Analysis – Routine analysis of blanks, duplicates, and standards are performed according to the frequency shown in Table V-1. Results of blank analysis are treated in the manner specified by the method. Data from results of duplicate analysis are treated in the manner specified by the method. Data from results of duplicate analysis are treated in the manner specified in Table V-1. Results of the known standard (glucose/glutamic acid) for BOD must be 198 +/- 37 mg/L. Records of all these quality control analysis are kept on daily bench sheets along with sample data.

Records and Reports – All records mentioned in the preceding and subsequent paragraph and section are retained at the treatment plant office in metal file cabinets and/or on the computer for a period of three years. Before any result is reported, all raw data and calculations are reviewed for accuracy. If data is transcribed to facilitate summarizing or neatness, the original record is also kept.

TABLE V-1  
QUALITY CONTROL FREQUENCY TABLE

<u>Parameter</u>	<u>Calibration</u>	<u>Known Standards</u>	<u>Blanks</u>	<u>Duplicates</u>	<u>Seeded</u>
BOD5	Air	N/A	Plastic/Glass	1 in 10	N/A
	Daily with Class 1				
TSS	Weight	N/A	N/A	Weekly	N/A
Settleable Solids	N/A	N/A	One	1 in 10	N/A
D.O.	Air	N/A	N/A	N/A	N/A
pH	N/A	N/A	N/A	N/A	N/A
E. Coli	Blanks	N/A	Each Test	1 in 10	N/A
Chlorine Residual	Blanks	N/A	Each Test	N/A	N/A

# Appendix



### CHAPEL HILL WASTEWATER TREATMENT PLANT SAMPLE LOCATIONS

- 1) INFLUENT GRAB: AT INFLUENT DIVIDER CHAMBER
- 2) EFFLUENT GRAB: CHLORINE CONTRACT CHAMBER.
- 3) EFFLUENT COMPOSITE SAMPLER (BOD &TSS) IN LABORATORY BUILDING.

### SAMPLE TIMES

ALL SAMPLE TIMES ARE RECORDED ON THE DAILY LOG FOR GRAB SAMPLES. SAMPLES ARE NORMALLY TAKEN AT 8:30 A.M.

## 5-DAY BIOCHEMICAL OXYGEN DEMAND (BOD5)

### METHOD # 5210 B

#### Preparation of Sample

1. Check pH of all samples before testing unless previous experience indicates that pH is within the acceptable range. Samples containing a pH over 8.5 or below 6.0 require neutralization with a solution of sulfuric acid 1N (H<sub>2</sub>SO<sub>4</sub>) or sodium hydroxide 1N (NaOH) of such strength that the quantity of reagent does not dilute the sample by more than 0.5%. The pH should then be between 6.5 and 7.5. The pH of dilution water should not be affected by the lowest sample dilution. Always seed samples that have been pH adjusted.
2. If the sample has been chlorinated but no detectable chlorine residual is present, seed the dilution water. If residual chlorine is present, dechlorinate sample first then seed the dilution water prior to setting up the BOD test.
3. Samples supersaturated with dissolved oxygen, over 9 mg/L at 20 degrees Celsius, may be encountered in cold waters (winter months) or in water where photosynthesis occurs (where large algae are actively growing; lagoons). To prevent loss of oxygen during incubation of such samples, reduce D.O. to saturation at 20 degrees Celsius by bringing sample to about 20 degrees Celsius in partially filled bottle while agitating by vigorous shaking or by aerating with clean, filtered compressed air.

#### Dilution Technique Example

1. Estimate the B.O.D. of the sample and select suitable dilutions from the following example table:

Estimated B.O.D. (Mg/L)	Suggested Volumes per Bottle (ml)	Type
Less than 5	200, 250 and 300	Effluent
Less than 10	100, 150 and 200	Effluent
10 – 30	25, 50 and 100	Effluent
30 – 60	15, 25 and 50	Effluent
60 – 90	10, 15 and 25	Influent
90 – 150	5, 10 and 15	Influent
150 – 300	3, 5 and 10	Influent
300 – 700	1, 3 and 5	Influent
700 – 1500	0.5, 1 and 3	Influent
1500 – 2500	0.25, 0.5 and 1	n/a

2. Using a large tipped-pipette, for samples less than 30ml and a graduated cylinder for larger sample volumes, measure the proper amount of well mixed sample into a thoroughly cleaned and rinsed 300ml BOD bottle. Sample mixing is best accomplished with a magnetic stirrer. (Dilutions less than 3ml should be made by diluting the waste in a graduated cylinder before pipetting).
3. Dilution water may be prepared immediately before use. Distilled water to be used should be allowed to equilibrate for at least 24 hours preferably at 20 degrees Celsius.
4. Each BOD sample bottle is filled slowly adding sufficient dilution water that the stopper can be inserted without leaving an air bubble but not so much there is overflowing.
5. Completely fill two bottles with dilution water for the blanks samples, to be used for determining the quality of the dilution water. Completely fill two other bottles with dilution water, these will be seeded for the seeded blanks.
7. Label each bottle carefully as to sample and volume used. RECORD ON DATA SHEET

**Incubation and Dissolved Oxygen (D.O.) Determinations:**

1. Calibrate D.O. meter each day of use and check membrane on probe. Calibration is done using the saturated air method.
2. Determine the D.O. of all sample bottles and record on data sheet as initial D.O.
3. Place the samples in a 20 degree Celsius (plus or minus 1 degree Celsius) incubator for 5 days. Fill water seals with dilution water and cover with plastic caps to reduce evaporation from seals. Check daily.
4. Before removing the caps, pour off the water above the glass cap.
5. After five days, determine the D.O. of the influent, blanks, effluent and the seeded blanks bottles.

### Calculations:

For each test bottle meeting the 2.0 mg/L minimum D.O. depletion and the 1.0 mg/L residual D.O., calculate the BOD5 as follows:

Using the data recorded (when seeding is not required, such as for influent samples):  
 $\text{BOD5 mg/L} = (\text{initial D.O.} - \text{D.O. 5}) \times \text{Dilution Factor}$

$$\text{Dilution Factor} = \frac{\text{Bottle Volume (300ml)}}{\text{Sample Volume}}$$

Using the data recorded for seeded samples (such as effluent samples):  
 $\text{BOD5 mg/L} = ((\text{initial D.O.} - \text{D.O. 5}) - \text{seeded blank}) \times \text{Dilution Factor}$

$$\text{Dilution Factor} = \frac{\text{Bottle Volume (300ml)}}{\text{Sample Volume}}$$

Note: 1. The D.O. uptake/depletion should not be more than 0.2 mg/L in the dilution water blanks or the results of the test are questionable.

2. Dissolved oxygen values of the samples. Best results are obtained if there is a difference of at least 2.0 mg/L in D.O. and if the D.O. is above 1.0 mg/L. Those results with acceptable depletions should then be averaged to obtain the average BOD of the sample.

### Preparation of BOD5 Standard Solution

#### Glucose – Glutamic Acid Standard (GGA Std.)

At this time, Chapel Hill purchases premixed standard.

The acceptable BOD5 value of the standard should be  $198 \pm 37 \text{ mg/L}$ . If the calculated results fall outside this range the cause of the problem must be identified. Once the problem is corrected another known should be set up immediately.

## TOTAL SUSPENDED SOLIDS

### METHOD # 2540 D

#### 1. Preparation of glass-fiber filter disk:

If prepared glass fiber filter disks are used, eliminate this step. Insert disk with wrinkled side up in filtration apparatus. Apply vacuum and wash disk with three successive 20-ml portions of reagent-grade water. Continue suction to remove all traces of water, turn vacuum off. Remove filter from filtration apparatus and transfer to an inert aluminum weighing dish. Dry in an oven at 103 to 105 degrees Celsius for 1 hour. Cool in a desiccator to balance temperature and weigh. Repeat cycle of drying or igniting, cooling, desiccating, and weighing until a constant weight is obtained or until weight change is less than 4% of the previous weighing or 0.5mg, whichever is less. Store in desiccator until needed.

#### 2. Selection of filter and sample sizes:

Choose sample volume to yield between 2 and 200mg dried residue. If volume filtered fails to meet minimum yield, increase sample volume up to 1 liter. If complete filtration takes more than 10 minutes, decrease sample volume.

#### 3. Sample analysis:

Assemble filtering apparatus and filter and begin suction. Wet filter with a small volume of reagent-grade water to seat it. Filter a measured volume of well mixed sample through the glass fiber filter. Wash filter with three successive 10 ml volumes of reagent-grade water, allowing complete draining between washings, and continue suction for about 3 minutes after filtration is complete. Samples with high dissolved solids may require additional washings. Carefully remove filter from filtration apparatus and transfer to an aluminum weighing dish as a support. Dry for at least 1 hour between 103 and 105 degrees Celsius in an oven, cool in a desiccator to balance temperature, and weigh. Repeat the cycle of drying, cooling, desiccating, and weighing until a constant weight is obtained or until the weight change is less than 4% of the previous weight or 0.5 mg., whichever is less.

#### 4. Calculations:

$$\text{mg total suspended solids/L} = \frac{(A-B) \times 1,000,000}{\text{sample volume, ml}}$$

Where:

A = Weight of filter + dried residue, grams. and

B = Weight of filter, grams.

## **SETTLEABLE SOLIDS**

### **METHOD # 2540 F**

#### **1. Volumetric:**

Fill an Imhoff cone to the 1-liter mark with a well mixed sample. Settle for 45 minutes, gently agitate sample near the sides of the cone with a rod or by spinning, settle 15 minutes longer, and recorded volume of settleable solids in the cone as millimeters per liter. If the settled matter contains pockets of liquid between large settled particles, estimate volume of these and subtract from volume of settled solids. The practical lower limit of measurement depends on sample composition and generally is in the range of 0.1 to 1.0 ml/L. Where separation of settleable and floating materials occurs, do not estimate the floating material as settleable matter. Replicates usually are not required.

## **DISSOLVED OXYGEN**

### **METHOD # 4500-O G**

1. Follow manufacturer's calibration procedures exactly to obtain guaranteed precision and accuracy. Generally, calibrate membrane electrodes by reading against air or a sample of known DO concentration (determined by iodometric method) as well as in a sample with zero DO.
2. Follow all precautions recommended by manufacturer to insure acceptable results. Take care in changing membrane to avoid contamination of sensing element and also trapping of minute air bubbles under the membrane, which can lead to lowered response and high residual current. Provide sufficient sample flow across membrane surface to overcome erratic response.

## **PH**

### **METHOD # 4500-H+ B**

#### **1. Instrument calibration:**

In each case follow manufacturer's instructions for pH meter and for storage and preparation of electrodes for use. Recommended solutions for short-term storage of electrodes vary with type of electrode and manufacturer. Keep electrodes wet by returning them to storage solution whenever pH meter is not in use.

2. Calibrate the electrode system against standard buffer solutions of known pH:  
The Chapel Hill Wastewater Treatment Plant generally uses 7.0 & 10.0.

#### **3. Sample analysis:**

Establish equilibrium between electrodes and sample by stirring sample to insure homogeneity; stir gently to minimize carbon dioxide entrainment. For buffered samples or those of high ionic

strength, condition electrodes after cleaning by dipping them into sample for 1 minute. Blot dry, immerse in a fresh portion of the same sample, and read pH. With dilute, poorly buffered solutions, equilibrate electrodes by immersing in three or four successive portions of sample. Take a fresh sample to measure pH.

### **E. COLI PROCEDURE**

#### **Hach m-ColiBlue24**

1. Selection of sample size:

Three quantities of sample are used – 10ml & 25 ml of effluent. A blank sample is also run on 99ml of dilution water to ensure negative growth in the dilution water.

2. Place a sterile pad in Petri dish, add m-ColiBlue24 broth to dish, filter the samples through the pads & place into Petri dishes.

3. Incubation:

Invert dish & place in dry bath incubator for 24 +/- 2 hours at 35 +/- 0.5 degrees Celsius.

4. Counting:

Dishes are placed under microscope & the colonies are counted. Red colonies are false positive & are not counted. Blue colonies are positive & are to be counted.

Coliform colonies per 100ml =  $\frac{\text{Sum of colonies in all samples}}{\text{Sum of volumes (in ml) of all samples}} \times 100$

### **TEMPERATURE**

#### **METHOD # 2550 B**

The Jasper Wastewater Treatment Plant currently utilizes a combination pH & Temperature probe for analysis. This temperature result is recorded as pH tests are run. Refer to pH section above.

### **TOTAL CHLORINE RESIDUAL**

#### **METHOD # 4500-Cl G**

Pour 10ml of sample (usually effluent) into two separate sample cells. Add Total Chlorine Powder pillow to one cell. The other cell is used as a blank. Invert sample for 20 seconds. Wait 3 minutes. Place blank cell into instrument, cover with cap & Zero. Then place sample cell into instrument, cover & Read.

# Chapel Hill WWTP BOD Worksheet -- Standard Methods 21<sup>st</sup> Edition # 5210 B -- Permit # TN0064670

Time of sampling - \_\_\_\_\_ am \_\_\_\_\_ Date \_\_\_\_\_ Person \_\_\_\_\_  
 Time analysis ran \_\_\_\_\_ am \_\_\_\_\_ Date \_\_\_\_\_ Person \_\_\_\_\_  
 Final time analysis ran \_\_\_\_\_ am \_\_\_\_\_ Date \_\_\_\_\_ Person \_\_\_\_\_

Incubator Temperature °C

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
20	20	20	20	20

Sample ID	Blank #1	Blank #2	Final Eff	Final Eff	Final Eff	GGA Std	GGA Std	Raw Inf	Raw Inf	Raw Inf	Raw Inf	Seed Control
Bottle #												Bottle #
Mls Used			20	30	30	40	6	6	5	6	7	Mls Used
Dilution Factor			15	10	10	7.5	50	50	60	50	42.8	Initial DO
Initial DO												Final DO -
Final DO -												Seed =
Oxygen Demand =												Demand
Seed Correction -												Seed X
Corrected Depletion =												Factor
Dilution Factor X			15	10	10	7.5	50	50	60	50	42.8	Seed =
BOD mg/L												Correction
Average												To figure seed factor, divide mls of seed in sample by the mls of seed in seed seed control (ex 2/15 = .13). Seed correction has to be between 0.6 and 1.0 to be used. This number is your seed correction to be used in your GGA standard. Add 2ml of seed to GGA samples.

MONTH \_\_\_\_\_ YEAR \_\_\_\_\_

YEAR \_\_\_\_\_

[illegible]

**CHAPEL HILL WASTEWATER DEPT.  
WEEKLY LAB SHEET**

\_\_\_\_\_, 20\_\_\_\_

**BOD Worksheet Method 5210-B**

	Blank		Final				Raw				
Bottle Number											
mL of Sample											
Initial DO											
Date:											
Time:											
Temperature:											
Final DO											
Date:											
Time:											
Temperature:											
Dil Factor											
Oxygen Demand											
BOD											
Initials: _____			average _____				average _____				

**Total Suspended Solids 2540-D**

	Blank	Effluent		
	B	1	2	
Final Weight				
Initial Weight				
Difference				
mL used				
TSS				
Date On _____ Time _____ Initials _____				average _____
Date Off _____ Time _____ Initials _____				

**E. Coli**

	mL filtered	Temp. of incubator colonies counted	colonies/100 mL
blank			
sample #1			
sample #2			
Date On _____ Time _____ Initials _____			
Date Off _____ Time _____ Initials _____			

**Settleable Solids 2540 F**

Effluent mg/L \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Initials: \_\_\_\_\_

Start Time \_\_\_\_\_ AM/PM

Stir Time \_\_\_\_\_ AM/PM

End Time \_\_\_\_\_ AM/PM

Initials: \_\_\_\_\_

Time: \_\_\_\_\_

Date: \_\_\_\_\_

Temperature of Ecoli Indicator	_____
Composite Sampler Refrigerator	_____
Lab Refrigerator	_____
Drying Oven	_____

		Total Chlorine 4500-ClG		Ph 4500-H+B			Dissolved Oxygen 4500-O G	
Time	Initial	Cl2 mgL-Effluent	Ph	Slope	Temp	DO mgL-Effluent	Air Cal. Temp.	
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
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21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								

# CHAPEL HILL WASTEWATER DEPARTMENT

\_\_\_\_\_, 20\_\_\_\_

Time	Initials		Town Influent	Use	Park Influent	Use	Total	Plant Effluent	Use
		1							
		2							
		3							
		4							
		5							
		6							
		7							
		8							
		9							
		10							
		11							
		12							
		13							
		14							
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		25							
		26							
		27							
		28							
		29							
		30							
		31							

REPORT OF OIL  
PLANT  
COUNTY  
MONTH OF JAN

[illegible]

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
DISCHARGE MONITORING REPORT (DMR)

Not Approved  
2 No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: CHAPEL HILL STP  
ADDRESS: P.O. BOX 157  
CHAPEL HILL, TN 37034  
FACILITY: CHAPEL HILL STP  
LOCATION: HIGHWAY 99  
CHAPEL HILL, TN 37034  
ATTN: DONALD CORRELL-MAYOR

PERMIT NUMBER  
TN0064670

DISCHARGE NUMBER  
001-G

DMR Mailing ZIP CODE: 37034  
MINOR  
(SUBR 08) BARB  
DESIGN CAPACITY OF 0.17 MGD  
External Outfall

MONITORING PERIOD  
MM/DD/YYYY TO MM/DD/YYYY  
02/01/2010 TO 02/28/2010

No Discharge ☐

PARAMETER		QUANTITY OR LOADING			UNITS	QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	VALUE		VALUE	VALUE	VALUE	UNITS			
Oxygen, dissolved (DO) 00300 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
BOD, 5-day, 20 deg. C 00310 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
BOD, 5-day, 20 deg. C 00310 G 0 Raw Sewage Influent	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
pH 00400 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
Solids, total suspended 00530 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
Solids, settleable 00545 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
E. coli, MTEC-MF 31648 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****			
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****			

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE		DATE
TYPED OR PRINTED	AREA Code	NUMBER	MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

85% REMOVAL - ONCE A MONTH CALCULATION OF MON AVG INFLUENT CONCENTRATION MUST BE A MIN OF 85%. 40% REMOVAL - DAILY CALCULATION OF INFLUENT CONCENTRATION MUST BE A MIN OF 40%. (O = EFFLUENT GROSS VALUE) JUST BE A MINIMUM OF 40%. U = WET WEATHER BYPASSING T= ALLOTTED BYPASSING

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
DISCHARGE MONITORING REPORT (DMR)**

Approved  
J No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

**NAME:** CHAPEL HILL STP  
**ADDRESS:** P.O. BOX 157  
 CHAPEL HILL, TN 37034  
**FACILITY:** CHAPEL HILL STP  
**LOCATION:** HIGHWAY 99  
 CHAPEL HILL, TN 37034  
**ATTN:** DONALD CORRELL-MAYOR

TN0064670	001-G
<b>PERMIT NUMBER</b>	<b>DISCHARGE NUMBER</b>

**DMR Mailing ZIP CODE:** 37034  
**MINOR**  
 (SUBR 08) BARB  
 DESIGN CAPACITY OF 0.17 MGD  
 External Outfall

<b>MONITORING PERIOD</b>	
MM/DD/YYYY	MM/DD/YYYY
02/01/2010	02/28/2010
<b>FROM</b>	<b>TO</b>

No Discharge ☐

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Flow, in conduit or thru treatment plant	50050 1 0 Effluent Gross	Req. Mon. MO AVG	Req. Mon. DAILY MX	Mgal/d	*****	*****	*****	*****			
	Flow, in conduit or thru treatment plant									Daily	CONTIN
50050 G 0 Raw Sewage Influent	SAMPLE MEASUREMENT				*****	*****	*****	*****			
	PERMIT REQUIREMENT	Req. Mon. MO AVG	Req. Mon. DAILY MX	Mgal/d	*****	*****	*****	*****			
Chlorine, total residual	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****			
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****			
50060 1 0 Effluent Gross	SAMPLE MEASUREMENT				*****	*****	*****	*****			
	PERMIT REQUIREMENT	Req. Mon. MO TOTAL	Req. Mon. MO TOTAL	occurs/mo	*****	*****	*****	*****		Weekdays	GRAB
Overflow use, occurrences	SAMPLE MEASUREMENT				*****	*****	*****	*****			
	PERMIT REQUIREMENT	Req. Mon. MO TOTAL	Req. Mon. MO TOTAL	occurs/mo	*****	*****	*****	*****		Monthly	OCCURS
74062 T 0 See Comments	SAMPLE MEASUREMENT				*****	*****	*****	*****			
	PERMIT REQUIREMENT	Req. Mon. MO TOTAL	Req. Mon. MO TOTAL	occurs/mo	*****	*****	*****	*****		Monthly	OCCURS
Bypass valve	SAMPLE MEASUREMENT				*****	*****	*****	*****			
	PERMIT REQUIREMENT	Req. Mon. MO TOTAL	Req. Mon. MO TOTAL	occurs/mo	*****	*****	*****	*****		Monthly	OCCURS
80998 T 0 See Comments	SAMPLE MEASUREMENT				*****	*****	*****	*****			
	PERMIT REQUIREMENT	Req. Mon. MO TOTAL	Req. Mon. MO TOTAL	occurs/mo	*****	*****	*****	*****		Monthly	OCCURS
BOD, 5-day, percent removal	SAMPLE MEASUREMENT				*****	*****	*****	*****			
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****			
81010 K 0 Percent Removal	SAMPLE MEASUREMENT				*****	*****	*****	*****			
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****		Weekly	COMPOS

<b>NAME/TITLE PRINCIPAL EXECUTIVE OFFICER</b>	<b>SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT</b>	<b>TELEPHONE</b>	<b>DATE</b>
<b>TYPED OR PRINTED</b>	<b>AREA Code</b>	<b>NUMBER</b>	<b>MM/DD/YYYY</b>

**COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)**

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**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
DISCHARGE MONITORING REPORT (DMR)**

Approved  
B No. 2040-0004

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PERMIT NUMBER  
TN0064670

DISCHARGE NUMBER  
001-G

**DMR Mailing ZIP CODE:** 37034  
 MINOR  
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**MONITORING PERIOD**  
 FROM MM/DD/YYYY TO MM/DD/YYYY  
 02/01/2010 TO 02/28/2010

No Discharge ☐

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	UNITS				
Solids, suspended percent removal	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****			
	PERMIT REQUIREMENT	*****	*****	*****	170 DAILY MIN	*****	*****	%		Weekly	CALCTD
Carbonaceous oxygen demand, % removal	SAMPLE MEASUREMENT	*****	*****	*****			*****				
	PERMIT REQUIREMENT	*****	*****	*****	64 DAILY MIN	65 MO AV MIN	*****	%		Weekly	CALCTD

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			AREA Code	NUMBER
TYPED OR PRINTED				

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